



## Gas Appliance Manufacturers Association

---

2107 Wilson Boulevard, Suite 800 ■ Arlington, VA 22201  
Phone: (703) 625-7080 ■ Fax: (703) 625-6780 ■ [www.gamane.org](http://www.gamane.org)

December 9, 2002

Mr. Bryan Alcorn  
2005 Standards Contract Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

Dear Bryan:

We have the following comments on the first draft revisions to the California Building Energy Standards and the Alternative Calculation Method Approval Manuals.

<u>Section</u>	<u>Comment</u>
101(b)	The definition of HI should be changed to Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). In 1995, the Hydronics Institute became a division of GAMA.
102	It is not possible to assess the significance of this requirement without knowing what the TDV multipliers are. While this section states that the multipliers are in the nonresidential ACM Manual, I could not find that document on the CEC website.
Table 112F	Since the use of $E_t$ is being deleted, footnote "a" should also be deleted.
Table 112G	Since all efficiency requirements at minimum capacity are being deleted, a footnote "a" should also be deleted.
122(h)	As proposed, this section appears to require that in the case of a building that has multiple space conditioning systems, the replacement of the space conditioning equipment that is part of one of those systems would require the certification of the space conditioning controls on all the space conditioning systems in the building. Is this the intent? If so, has this change been economically justified?

/Continued

150(j)1.A. Delete this requirement. As explained in footnote 123, this requirement is no longer needed in view of increased federal minimum efficiency requirements for residential water heaters that go into effect in 2004.

151(b)(l) This proposal to use a TDV based water heating energy budget for low rise residential buildings should be deleted. The revised TDV water heating budget calculation is unnecessarily complex and inappropriate for single family dwellings or other low rise residential buildings which have their own water heater and hot water distribution system. A critical aspect of the proposed new calculation procedure is the hourly adjusted recovery load and the hourly hot water consumption. Table RN1 in Draft #1 of the 2005 Residential ACM Manual shows that some water heating occurs in every hour of the day. This may be an acceptable assumption for a central system serving multiple dwelling units but it is incorrect to assume that there is some hot water consumption in every hour of the day in a single family dwelling with its own water heater. This is categorically untrue. In a single family dwelling there will be periods of no hot water use. There will be no hot water use when the residents are sleeping, if not at other times of the day,. When the hot water use of many individual residences is analyzed, an hourly profile such as Table RN1 results because the periods of hot water use in each household differ so that hot water use in one residence may be occurring during the time when there is no hot water use in another residence. On average this results in a schedule that shows some hot water use in every hour of the day. On a basic common sense level it should be clear that for a specific single family dwelling, this is erroneous assumption.

Central water heating systems serving multifamily buildings are more likely to have hot water use schedules that may be characterized by Table RN1. Such hourly use is critical to the use of the TDV concept for determining a water heating budget. But the TDV concept and the proposed revised water heating budget should only be used for buildings that are other than low rise residential building and which have central water heating systems.

This change to calculate residential water heating use on an hourly basis has been justified only on the basis that it is needed for applying the TDV concept to assess residential building energy performance and to address the need for tradeoffs to permit electric or propane water heaters. These are not sufficiently valid reasons. /Continued

Considering the water heating energy consumption separately from the rest of the energy performance of a single family building would not significantly affect the use of TDV to assess the energy consumption for that building. Furthermore, no information has been provided to support the need or benefit of the TDV concept for propane water heaters. Insofar as electric water heaters, the TDV concept seems to be a variation of off-peak electric rates for water heating that are offered by some electric utilities in the United States. In that case, the use of off peak electricity for heating water in single family residences can be addressed without artificial schedules of hourly usage.

151(f) 8.B

This proposal requires that central water heating systems serving multiple dwelling units have a single water heater. The “Purpose and Scope” of Appendix RN in ACM-RN –2005 recognizes a central water heating system which has a single distribution system with multiple water heaters serving multiple units. This section, as proposed, would preclude those types of systems. If that is the intent, those systems need not be addressed by the proposed Appendix RN.

This proposal also requires that all central water heating systems serving multiple dwelling units be recirculating, regardless of whether it serves two units or two hundred. Has this requirement been justified for central water heating systems that serve a small number of dwelling units?

Appendix RN

This calculated hourly consumption in this appendix does not vary seasonally. In view of that, the use of a cold water inlet temperature that varies monthly is an unnecessary complication. The use of an average cold-water inlet temperature would achieve the same result.

Equation RN 20 seems incorrect. The denominator should be the recovery efficiency of the water heater, not the EF. Also, Equation RN 21 is confusing. If it is intended to measure electrical energy than use of  $Pilot_j$  is incorrect. A pilot is a gas flame. It does not consumer electricity. This term should be replaced by the electrical consumption of the electronic ignition system, not the pilot. The same comment applies to Equation RN 24.

In Equation RN 23,  $EFF_j$  cannot be the AFUE. It is not clear why that energy descriptor is ever considered in this equation since

/Continued

Mr. Bryan Alcorn  
Page 4  
December 9, 2002

AFUE is a measure of space heating efficiency, not water heating efficiency. Also what is the justification of assigning a value of .98 to  $EAF_j$ , for indirect gas water heaters? How was Equation RN 27 derived? It is difficult to evaluate the validity of this equation without that information.

If you have any questions regarding any of our comments, please call me.

Sincerely,

A handwritten signature in dark ink, appearing to read "Frank", with a large, sweeping circular flourish to the left.

Frank A. Stanonik  
Chief Technical Advisor

/fas